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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/000,461	11/30/2001	Peter Waksman	OAQ-013/PA-1230	2303

959 7590 11/27/2006

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EXAMINER

THOMPSON, JAMES A

ART UNIT PAPER NUMBER

2625

DATE MAILED: 11/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/000,461	Applicant(s) WAKSMAN, PETER	
	Examiner James A. Thompson	Art Unit 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01 September 2006 has been entered.

### *Response to Arguments*

2. Applicant's arguments filed 01 September 2006 have been fully considered but they are not persuasive. Applicant's discussion with respect to the applied prior art and with respect to the alleged differences between the applied prior art and the present claims has been fully considered by Examiner. Applicant's arguments are directed to the present amendments to the claims, and not the claims as recited immediately prior to the previous office action, mailed 03 March 2006. As such, the presently amended claims are dealt with below in the prior art rejections.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 8-9, 12-14 and 17-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Braudaway (US Patent 5,502,458).

Regarding claim 1: Braudaway discloses providing input color data for a group of pixels in an input color space (column 7, lines 7-9 of Braudaway); building an intermediate table (display-independent matrix) for storing the input color data (column 5, lines 45-53 of Braudaway), wherein said input color data is stored at an indexed position, the indexed position responsive to the input color data (column 5, lines 53-56 of Braudaway); converting the input color data in the intermediate table to an output color data in an output color space, wherein the same input color data in different pixels is stored once in the intermediate table to avoid repeated conversion calculations for the different pixels having the same input

color data (column 5, line 65 to column 6, line 4 of Braudaway – the use of a transform matrix means that different pixels with the same input value are converted without the need for repeated conversion calculations); and for each pixel in the group of pixels substituting the output color data for the input color data (figures 2B-2C and column 6, lines 14-24 of Braudaway).

**Regarding claim 2:** Braudaway discloses using a host function to determine the indexed position in the intermediate table for each of the pixels in the group of pixels (column 7, lines 21-26 of Braudaway). The host function is the function based on the normalized luminance values that is used to create the display specific palette for a particular display device (column 7, lines 21-26 of Braudaway).

**Regarding claims 8-9:** Braudaway discloses that the electronic device is a computer system (figure 1(10) and column 6, lines 28-33 of Braudaway). Since said computer system performs the steps of the flowcharts in figures 4-5 of Braudaway (column 6, lines 32-33 of Braudaway), said computer system is also clearly an image-reproducing apparatus.

**Regarding claim 12:** Braudaway discloses that the group of pixels comprises a row of pixels (figure 1(28) and column 6, lines 40-44 of Braudaway). Since a display is used to output the image data (figure 1(28) and column 6, lines 40-44 of Braudaway) and said display is clearly two-dimensional, then said group of pixels must comprise a row of pixels.

**Regarding claim 13:** Braudaway discloses providing a set of input color data for pixels, said color data encoding colors for the pixels in a first color space (column 7, lines 7-9 of Braudaway); for each of the pixels, determining an index for the pixel based on the color data for the pixel (column 5, lines 53-56 of Braudaway); building an intermediate table (display-independent matrix) for holding the input color data at a position of the index (column 5, lines 45-56 of Braudaway); converting the input color data into an output (display-specific) color data in a second color space, wherein the same input color data in different pixels is held once in the intermediate table to avoid repeated conversion calculations for the different pixels having the same input color data (column 5, line 65 to column 6, line 4 of Braudaway – the use of a transform matrix means that different pixels with the same input value are converted without the need for repeated conversion calculations); and for each pixel, substituting the output color data for the input color data (figures 2B-2C and column 6, lines 14-24 of Braudaway).

**Regarding claim 17:** Braudaway discloses that the method is performed by a processor (figure 1(11) and column 6, lines 30-33 of Braudaway).

**Regarding claim 18:** Braudaway discloses a device (figure 1(10) of Braudaway) comprising: a storage facility (figure 1(15a) and column 6, lines 35-36 of Braudaway) for storing an intermediate table (display-independent matrix) (column 5, lines 45-53 of Braudaway), wherein the intermediate table holds

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input color representations of a set of pixels at positions of indices, the indices being responsive to the color representations of the set of pixels (column 5, lines 53-56 of Braudaway); and a conversion facility (figure 1(11) and column 6, lines 32-34 of Braudaway) for converting the input color representations of the set of pixels in the intermediate table to output (display-specific) color representations in a second color space, wherein the same input color representation in different pixels is stored once in the intermediate table to avoid repeated conversion calculations for the different pixels having the same input color representation (column 5, line 65 to column 6, line 4 of Braudaway – the use of a transform matrix means that different pixels with the same input value are converted without the need for repeated conversion calculations).

**Regarding claim 19:** Braudaway discloses that the conversion facility is implemented by a processor (figure 1(11) and column 6, lines 30-33 of Braudaway).

**Regarding claim 20:** Braudaway discloses mapping input color image data for a group of pixels in the first color space (column 7, lines 7-9 of Braudaway) to indices (column 5, lines 53-56 of Braudaway), wherein the input color image data is stored in an intermediate table (display-independent matrix) at positions of the indices (column 5, lines 45-56 of Braudaway); converting the input color image data in the intermediate table to an output color image data in the second color space, wherein the same input color image data in different pixels is stored once in the intermediate table to avoid repeated conversion calculations for the different pixels having the same input color image data (column 5, line 65 to column 6, line 4 of Braudaway – the use of a transform matrix means that different pixels with the same input value are converted without the need for repeated conversion calculations); and reconstructing the group of pixels in the second color space using the output color data (figures 2B-2C and column 6, lines 14-24 of Braudaway).

**Regarding claim 21:** Braudaway discloses using a hash computer programming function to determine the indexed position in the intermediate table for each of the pixels in the group of pixels (figure 2C(“entry”) and column 5, lines 53-56 of Braudaway). As is well-known in the art, a hash computer programming function directly accesses data at a specific address based on a specific key in a specific key set. In the case of the color palette taught by Braudaway, the key for the hash function is the entry number of the intermediate table.

**Regarding claim 22:** Braudaway discloses that the indexed position of the pixels is also stored in an index array at a location in the index array that corresponds to a location in the group of pixels (column 5, lines 45-53 of Braudaway).

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**Regarding claims 3, 14 and 23:** Braudaway discloses that the input color space comprises a (R,G,B) color space (column 7, lines 8-11 of Braudaway).

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4-5, 10-11, 16 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braudaway (US Patent 5,502,458) in view of Liang (US Patent 5,579,031).

**Regarding claims 4, 16 and 24:** Braudaway does not disclose expressly that the output color space, and thus the second color space, comprises a (C,M,Y,K) color space.

Liang discloses converting a color space to a (C,M,Y,K) color space (figure 9 and column 15, lines 28-32 of Braudaway). Thus, the second color space is a (C,M,Y,K) color space.

Braudaway and Liang are combinable because they are from the same field of endeavor, namely the conversion of color data from an input device color space to an output device color space so that the images look the same for both devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a (C,M,Y,K) color space for the output device color space, as taught by Liang. The motivation for doing so would have been to be able to output an image on a printer (column 15, lines 22-23 of Liang). Therefore, it would have been obvious to combine Liang with Braudaway to obtain the invention as specified in claims 4, 16 and 24.

**Regarding claims 5 and 25:** Braudaway does not disclose expressly that the output color space comprises a (C,M,Y) color space.

Liang discloses converting a color space (column 15, lines 28-32 of Braudaway) to a (C,M,Y) color space (column 11, line 66 to column 12, line 2 and column 12, lines 62-67 of Braudaway).

Braudaway and Liang are combinable because they are from the same field of endeavor, namely the conversion of color data from an input device color space to an output device color space so that the images look the same for both devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a (C,M,Y) color space for the output device color space, as taught by Liang. The motivation for doing so would have been to be able to output an image on a printer

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(column 15, lines 22-23 of Liang), and the black (K) color is dependent upon the (C,M,Y)-values (column 12, lines 62-67 of Liang). Therefore, it would have been obvious to combine Liang with Braudaway to obtain the invention as specified in claims 5 and 25.

**Regarding claim 10:** Braudaway does not disclose expressly that said electronic device is a copier.

Liang discloses that the electronic device used in matching colors produces a printed output of the converted image data (column 15, lines 22-27 of Liang), and is thus a copier.

Braudaway and Liang are combinable because they are from the same field of endeavor, namely the conversion of color data from an input device color space to an output device color space so that the images look the same for both devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to embody the electronic device as a copier, as taught by Liang. The motivation for doing so would have been to be able to output an image on a printer (column 15, lines 22-23 of Liang). Therefore, it would have been obvious to combine Liang with Braudaway to obtain the invention as specified in claim 10.

**Regarding claim 11:** Braudaway does not disclose expressly that said electronic device is a printer.

Liang discloses that the electronic device used in matching colors is a printer (column 15, lines 22-27 of Liang).

Braudaway and Liang are combinable because they are from the same field of endeavor, namely the conversion of color data from an input device color space to an output device color space so that the images look the same for both devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to embody the electronic device as a printer, as taught by Liang. The motivation for doing so would have been to be able to output a printed hard copy of an imager (column 15, lines 22-23 of Liang). Therefore, it would have been obvious to combine Liang with Braudaway to obtain the invention as specified in claim 11.

**7. Claims 6-7, 15 and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braudaway (US Patent 5,502,458) in view of Winkelman (US Patent 5,668,890).**

**Regarding claims 6-7, 15 and 26-27:** Braudaway does not disclose expressly that the input color space, and thus the first color space, comprises a grey scale color space; and the output color space, and thus the second color space, comprises a grey scale color space.

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Winkelman discloses a grey scale color space for the input color space (column 6, lines 45-50 and lines 56-59 of Winkelman). If a black-and-white original is input (column 6, lines 45-50 of Winkelman), the only the luminance ( $L^*$ ) component of the CIELab color space will be used.

Winkelman further discloses that the output color space is a grey scale color space (figure 20 and column 5, lines 7-14 of Winkelman). Since the input color space is grey scale due to the fact that only the luminance ( $L^*$ ) component is used (column 6, lines 45-50 and lines 56-59 of Winkelman), then the output color space (figure 20( $L^*_{KOR}, a^*_{KOR}, b^*_{KOR}$ )) must also be grey scale (only  $L^*_{KOR}$  used).

Braudaway and Winkelman are combinable because they are from the same field of endeavor, namely the conversion and correction of color spaces in digital image systems so that the image input with one device will look the same when output by another device. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a grey scale color space for the input color space and the output color space. The suggestion for doing so would have been that some images are black-and-white image (column 6, lines 45-50 of Winkelman), and thus are better represented with a grey scale color space. Therefore, it would have been obvious to combine Winkelman with Braudaway to obtain the invention as specified in claims 6-7, 15 and 26-27.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is 571-272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



22 November 2006

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